

Appendix

1. A composition comprising a polymeric material having a rheology such that the slope (or S) determined by linear least squares regression, of a plot of the natural log of loss modulus (or G'') versus natural log of storage modulus (or G') is greater than $[0.635 * (\text{melt index}) + 13.2] / [(\text{melt index}) + 16.6]$, and wherein the polymeric material has a CDF RI fraction less than 0.23 of a GPC chromatogram which has a molecular weight above 85,000 g/mol, and a CDF LS fraction of more than 0.07 at a conventional GPC molecular weight of 1,750,000 g/mol or greater.
2. The composition of Claim 1 wherein the polymeric material has a melt strength less than about 5 cN.
3. The composition of Claim 1 wherein the polymeric material comprises LDPE.
4. The composition of Claim 1 wherein the polymeric material comprises a blend of at least two polymeric materials.
5. The composition of Claim 1 wherein the polymeric material comprises Linear PE.
6. The composition of Claim 3 wherein the LDPE comprises a high molecular weight highly branched component with an MWD greater than 10 and a $M_w(\text{absolute})/M_w(\text{GPC})$ ratio greater than 3.0.
7. The composition of Claim 6 wherein the LDPE is made in an autoclave reactor with chilled ethylene feed below 35°C operating in single phase mode.
8. The composition of Claim 1 wherein the polymeric material has a melt index greater than 10 g/10min.
9. The composition of Claim 8 wherein the polymeric material has a melt index greater than about 13 g/10min.
10. The composition of Claim 8 wherein the polymeric material has a melt index less than about 100 g/10min.
11. The composition of Claim 1 wherein the polymeric material has a Mark-Houwink plot where the slope is less than 0.25 in the absolute molecular weight range between 300,000 and 3,000,000 g/mol.

12. The composition of Claim 1 wherein the value for S is at least 1% greater than $[0.635 * (\text{melt index}) + 13.2] / [(\text{melt index}) + 16.6]$.

13. The composition of Claim 12 wherein the value for S is at least 2% greater than $[0.635 * (\text{melt index}) + 13.2] / [(\text{melt index}) + 16.6]$.

14. The composition of Claim 1 wherein the polymeric material has a CDF RI fraction less than 0.21 of a GPC chromatogram which has a molecular weight above 85,000 g/mol.

15. The composition of Claim 1 wherein the polymeric material has a CDF RI fraction less than 0.20 of a GPC chromatogram which has a molecular weight above 85,000 g/mol.

16. The composition of Claim 1 wherein the polymer material has a CDF LS fraction greater than 0.09 of a GPC chromatogram which has a molecular weight above 1,750,000 g/mol.

17. The use of a composition according to Claim 1 to make a cast film, profile extrusion, coated substrate, extrusion lamination or extrusion coated substrate.

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